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SHOULD VITAMIN D BE GIVEN ONLY TO INFANTS?

VITAMIN D has been so successful in preventing rickets during infancy that there has been little emphasis on continuing its use after the second year.

But now a careful histologic study has been made which reveals a startlingly high incidence of rickets in children 2 to 14 years old. Follis, Jackson, Eliot, and Park* report that postmortem examination of 230 children of this age group showed the total prevalence of rickets to be 46.5%.

Rachitic changes were present as late as the fourteenth year, and the incidence was higher among children dying from acute disease than in those dying of chronic disease.

The authors conclude, "We doubt if slight degrees of rickets, such as we found in many of our children, interfere with health and development, but our studies as a whole afford reason to prolong administration of vitamin D to the age limit of our study, the fourteenth year, and especially indicate the necessity to suspect and to take the necessary measures to guard against rickets in sick children."

*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

MEAD'S Oleum Percomorphum With Other Fish-Liver Oils and Viosterol is a potent source of vitamins A and D, which is well taken by older children because it can be given in small dosage or capsule form. This ease of administration favors continued year-round use, including periods of illness.

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CASE REPORT NO. 4

SPONTANEOUS PNEUMOTHORAX

Dr. Frederic Burke H.F.R. - 44-7765

H.R., a four year old white female, was admitted to the Hospital on October 26, 1944 with the chief complaints of cyanosis, dyspnea, fever and vomiting. Her present illness had begun ten days before when, for no apparent reason, she vomited several times. The following day her temperature was 102° and she had eight or nine yellowish-green loose stools. She was lethargic and her appetite was poor and she complained of intermittent abdominal pain. These symptoms persisted with a marked loss of weight. The fever was accompanied by chilly sensations but after a week the temperature returned almost to normal, her appetite picked up, and the abdominal pain and diarrhea almost disappeared.

About 1:30 P.M. on October 26 the patient suddenly developed dyspnea and appeared cyanotic. The family doctor was notified and diagnosing pneumonia, recommended admission to the hospital. There had been no cough at any time. The abdominal pain had been absent for several days, but a slight fever was present.

The past history was essentially negative. The child was one of three siblings and her brother and sister are living and well. There was no evidence of allergy, tuberculosis, or other significant disease in the family history. She had not been in contact with any known infection.

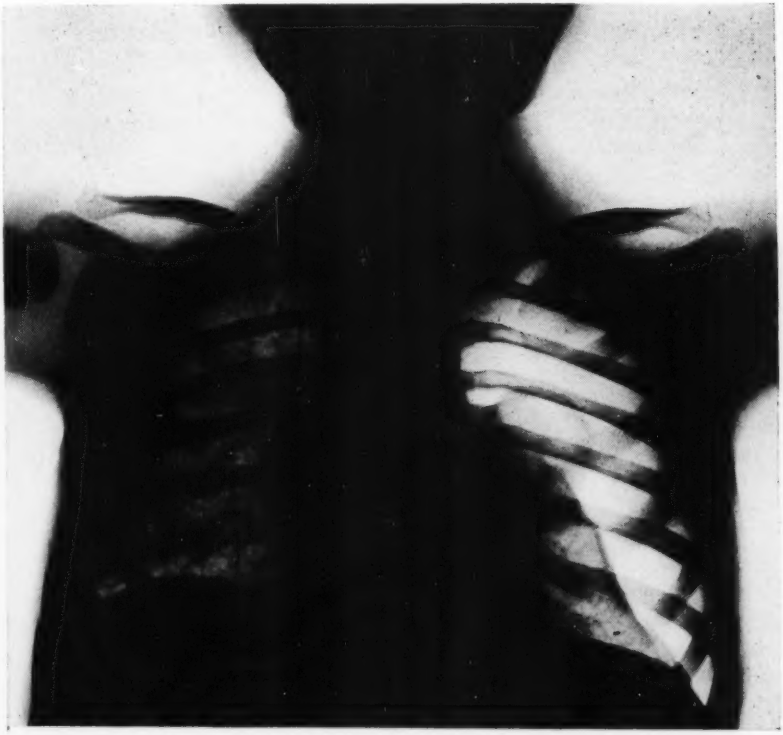
Physical examination revealed a severely dyspneic white girl, about four years of age, who appeared very pale and emaciated. She was moderately dehydrated and cyanotic. The scalp revealed several crusted areas that had been irritated by picking. The left side of the thorax was fully expanded with wide intercostal spaces and appeared fixed with some retraction of the opposite side. The percussion note over the left chest was tympanitic, with normal resonance on the right. No breath sounds were heard on the left and the apical beat was palpated in the midsternal line. Auscultation over the right chest revealed no evidence of abnormality. The abdomen was moderately tense and slightly distended and she insisted on keeping her knees flexed. Liver, kidneys, and spleen were not palpable. The extremities and reflexes were essentially normal.

The impressions on admission were: (1) Tension pneumothorax of the left lung, probably with broncho-pleural fistula, (2) Parenteral diarrhea, dehydration and mild acidosis.

Roentgenographic examination confirmed the diagnosis of tension pneumothorax of the left lung, and 700 c.c. of air were removed under pressure from the left pleural space with immediate relief of the cyanosis and a decrease in the respiratory rate. Breath sounds became audible, although slightly distant, and the percussion note was less tympanitic. At the time of aspiration of air, 2 c.c. of yellow-tinged froth were removed and forwarded to the laboratory for examination. Two hours afterwards, slight cyanosis was again noted with an increased respiratory rate and thoracentesis again yielded 700 c.c. of air. The temperature, which upon admission was 101°, rose to 103°. The child was observed every hour throughout the night, and the chest aspirated every two hours of 150 to 650 c.c. of air. During the next two days aspirations became less frequently indicated and on the fifth day approximately 90 c.c. of straw colored fluid were removed along with 450 c.c. of air. The original fluid removed on the night of admission was reported negative for acid-fast organisms, and the culture revealed nonhemolytic streptococcus. This same organism was cultured from a small amount of fluid removed on 10-29-44 and 10-31-44. Her blood picture showed 47,900 leucocytes with 76% polymorphonuclears, and 20% lymphocytes and 8.5 gms. hemoglobin with 3,270,000 red blood cells. Her urinalysis upon admission was essentially negative, except for a trace of albumen.

She was given large doses of sulfadiazine with adequate parenteral fluids and blood transfusions. Tuberculin tests for O.T. 1/10 and P.P.D. second strength were negative. Teleroentgenograms revealed the lung, on the sixth day, to have re-expanded and showed evidence of pneumonic infiltration with some thickened pleura and a little fluid in the left base. Following the report of streptococci in the cultures from the pleural fluid, 10,000 units of penicillin was introduced directly into the left pleural cavity; 15,000 units stat, followed by 5,000 units was given every three hours, intramuscularly. The following day when the x-ray report of re-expansion was noted, intrapleural administration was discontinued. The temperature curve had shown no response to adequate sulfadiazine dosage and on November 2, one week after admission, sulfathiazole was substituted and the penicillin increased to 15,000 units every three hours. There was marked improvement. The temperature dropped and is now normal. A re-examination of the

chest showed the parenchymal involvement to be resolving and a small amount of loculated air is still to be seen overlying the left diaphragm. The hemogram, except for slight anemia, is now essentially normal.



Courtesy of the X-ray and Photography Depts., Children's Hospital, Wash., D. C.

H.F.R.—LEFT TENSION PNEUMOTHORAX—NOTE ABSENCE OF ANY SIGNIFICANT MEDIASTINAL SHIFT.

(Editor's note - Dr. Linson has reviewed the pertinent literature and Dr. Klepser, the thoracic surgical consultant for this patient, will discuss Pneumothorax.)

DISCUSSION

Dr. Elizabeth Linson—The case presented above represents a typical picture of spontaneous pneumothorax in children with the exception that this child was older than the majority of those reported in the literature.

The incidence of the disease in children is low. Harriet Lane Home has on record fourteen cases out of 60,000 admissions to the

hospital and dispensary. Schall reports a 6% incidence of spontaneous pneumothorax in 129 cases of pneumonia, whereas 50% of empyemas develop pneumothorax according to Brenneman.

The etiology of spontaneous pneumothorax differs from adults in that tuberculosis rarely is the cause. Brenneman states that tuberculosis plays a minor role in children. Cocchini and Rossi compare a 70-90% incidence of tuberculosis in adults to 25% in childhood as a cause of pneumothorax. All authors agree that pneumonia and its complications precede spontaneous pneumothorax in the majority of cases. Cocchini and Rossi found 46% of 284 cases due to pneumonia and 11% as a complication of empyema. Of Stoloff's series of 84 cases reported in Brenneman, 36% were preceded by pneumonia, 13% by gangrene of the lung, 13% by empyema, 5% by pertussis, 4% by lung abscesses, and 4% by a foreign body. Rupture of subpleural blebs and bronchial asthma have also been mentioned as causes. Of interest because of their rarity are two cases, one of which developed a pneumothorax following lye ingestion and the other on the basis of a pneumonic process which followed the ingestion of kerosene.

Clinically, the onset may be either so sudden that the diagnosis may be made from the history or latent with slowly developing symptoms so that the diagnosis is made usually by x-ray. The typical picture is that of a child during or following an attack of pneumonia who cries out suddenly with pain, becomes rapidly dyspneic, cyanotic, coughs frequently and develops a secondary rise in temperature. In a tension pneumothorax with bronchopleural fistula there is increased dyspnoea, cyanosis, restlessness, and finally circulatory collapse unless the pressure is relieved.

On examination of the chest, there is a decrease in the excursion of the affected side. The intercostal spaces may be level or bulging if sufficient tension is present. Subcutaneous emphysema may also be present. Though tympany is the rule there may be dullness to percussion over the affected area. Breath sounds are distant or amphoric if communication with a bronchus exists, and a shift of the heart may occur. Pleural effusion in addition can be detected by shifting dullness and the classical physical signs of secussion splash and metallic tinkle. In infants there may be a notable lack of symptoms and signs.

The prognosis is poor according to Holt and McIntosh with a mortality rate of more than 50%. Most of the deaths occurred in those who developed pneumothorax at the height of an acute

pulmonic infection. It is possible that the prognosis of this latter group will improve markedly with the local use of penicillin.

Dr. Roy Klepser—Spontaneous pneumothorax, occurring in an otherwise healthy person, has until recently been considered as a manifestation of pulmonary tuberculosis. Even thouth the presence of tuberculosis could not be demonstrated, a pneumothorax, like pleural effusion, was thought to be prima facia evidence of phthisis. The mechanism involved is no longer held, for it has been shown that these patients do not later become tuberculous, and autopsies have failed to show a tuberculosis infection at the site of rupture. When a tuberculous focus ruptures into the pleural space, an entirely different toxic condition develops. Spontaneous pneumothorax usually clears up uneventfully and is not accompanied by constitutional symptoms unless there is a large, persistent tear, enough to cause intrapleural compression and mediastinal shift, in which case the symptoms are due to mechanical, not toxic, causes.

Spontaneous pneumothorax in apparently healthy children is oftentimes caused by the rupture of subpleural vesicles, or of congenital pulmonary cysts. Occasionally the rent in the pleura is due to the pull of adhesions. The rupture of mediastinal pleura with a secondary pneumothorax is not uncommon, and is seen in children with pneumonia and following severe asthmatic attacks. In the latter type, where mediastinal emphysema is present, there is usually cervical subcutaneous emphysema. One such case, following an asthmatic attack, has recently been observed at Children's Hospital in a nine year old girl. Pneumothorax was of short duration, being present less than twenty-four hours, the subcutaneous emphysema was the more outstanding feature.

When the pleural rent is small, many patients recover from a spontaneous pneumothorax if left alone. In most cases the lung will readily re-expand after air has been aspirated by thoracentesis. This was the procedure that was followed in the case presented. If the rent is large and persistent and an intrapleural positive pressure is building up, shifting the mediastinum and compressing the contralateral lung, immediate and frequently repeated thoracentesis is mandatory. The treatment of spontaneous pneumothorax is directed toward relieving the increased intrathoracic pressure. If there is no mediastinal shift and no symptoms of respiratory embarrassment, the patient may be left alone.

In cases in which the opening in the lung is too large to close

readily, it occasionally becomes necessary to insert a tube into the chest cavity, the distal end of the rubber tube being placed in a bottle of water on the floor, making an escape valve which prevents re-admission of air into the pleural space. In such cases empyema usually develops—either through the drainage site or by way of the bronchopleural fistula which causes the pneumothorax. Rib resection with adequate dependent drainage, as though empyema were already present, is much better than a smaller intercostal non-dependent outlet that is inadequate to take care of the empyema which almost invariably follows any tear of lung tisuse large enough to necessitate surgical drainage.

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CASE REPORT NO. 5

NEVUS FLAMMEUS WITH GLAUCOMA

Dr. Julius Loebl P.G. - 44-8027

This patient is an 8 weeks old colored female admitted to the Hospital from the dispensary on November 9, 1944 with a chief complaint of swelling of the right eyelid and a "wrong color" to the eye. This abnormality was first noticed by the mother shortly after the birth of the child as was also a reddish birthmark in the skin around this eye. The patient was born in Gallinger Hospital and a check of the records from that institution reveals that no abnormality of birth or of the baby was reported. A short time after leaving the hospital the mother observed that the sclera was pink and the pupil appeared bluish and differed from the opposite eye. She assumed that this condition was painful since the infant cried frequently. Excessive tearing was absent. She appeared otherwise well. The mother's serology at birth and a cord Wassermann were negative.

Physical examination upon admission showed a well nourished, well developed 7 weeks old colored female who did not appear

acutely ill. An extensive port-wine nevus covering most of the right side of the face, left cheek, and temple and extending into the hairy part of the scalp was present. There was swelling of the lids on the right with exophthalmus of a mild degree and conjunctival injection. The right cornea appeared enlarged, steamy, and grayish-blue. The iris and pupil could not be seen, and grossly the intraocular pressure felt increased. The remainder of the examination was essentially negative.

Radiographic examination of the skull was negative and a hemogram revealed a mild secondary anemia. Since admission the child has reacted normally and has gained 8 ozs. She was seen by Dr. Costenbader who performed a paracentesis of the affected orbit on 11-15-44.

DISCUSSION

Dr. Costenbader—The case which has been presented is relatively rare in the ophthalmic literature. Until 1933 only 80 cases had been reported. Since that time a number of isolated cases have been published totaling probably not more than 100. The occurrence of a bilateral facial nevus with bilateral glaucoma is quite rare. Here in our hospital we had another case about seven years ago who was also a colored youngster. I am attending at the present time a white girl, aged seven years, who has a left sided capillary facial nevus involving the area of the upper two branches of the 5th nerve. This child does not have glaucoma at present but has some dilated scleral vessels and a somewhat enlarged globe. I feel that formerly she had increased intraocular pressure resulting in an enlarged globe and now the eye has compensated and the pressure is no longer elevated.

Congenital glaucoma in general is interesting. Either because the aqueous humor forms too fast or because its outflow is obstructed more remains in the infantile eye than should normally be there. This causes the pressure to increase. Also because the infantile sclera is less rigid and more elastic the globe will increase in size as the pressure continues, in contrast to the adult eye wherein the sclera is rigid and the globe does not enlarge.

Congenital glaucoma may be (1) uncomplicated—in which there is an enlarged globe, increased tension and usually congenital interference with the passage of the aqueous through the filtration angle (due to the absence of the Canal of Schlemm, closed tra-

beculae, or an iris congenitally adherent to the cornea). (2) With vascular changes—such as facial nevus, dilated capillaries, and small vessel changes in the conjunctiva, sclera, iris, and choroid and at times actual large hemangiomata of the choroid. It is interesting that these vascular findings of the face and eye at times are co-existant with angiomata of the meninges. It is a *point of particular interest* that glaucoma has not been known to exist unless the facial nevus involves the lids, conjunctiva, or sclera. (3) With neuro-fibromatosis—in which there is a diffuse overgrowth of fibrous-like cells of the entire uveal tract.

The treatment of congenital glaucoma is unsatisfactory. About 10% of the cases may be successfully managed; the remainder go on to blindness. An attempt is made surgically to establish drainage (1) from under the choroid, (2) by a cyclodialysis operation, or (3) by establishing drainage from under the conjunctiva by a sclerotrephine or an iridencleisis operation. These operations have to be repeated many times and the only hope is continued repetition or variation of the above procedures until failure is admitted or until the tension remains normal and some degree of vision is retained.

With particular reference to the present case it should be pointed out that upon admission the globe was enlarged and the cornea steamy, suggesting an increased tension. To the fingers the tension in the right eye was obviously elevated and in the left eye normal. Myotics seemed to improve the tension though the cornea remained steamy. At the time of operation the tension actually measured 20 mm. in each eye though the cornea of the left eye was still steamy. Immediately following the opening of the anterior chambers, the cornea cleared. The tension has continued between normal (20 mm. or so) and subnormal (12 mm.) since that time. The fundus has been carefully examined through the dilated pupil since the original operation and large multiple detachments of the retina are apparent. These transluminate poorly, suggesting solid material under the detached retina. The assumption is that there are large hemangiomata of the choroid causing the retinal detachments.

Permission for further surgery or for removal of this useless, potentially dangerous eye, has been refused. We hope to follow this baby in the clinic.

Dr. Copeland—"What is the hazard of letting the eye alone?"

Dr. Costenbader—"It will be an annoying eye. There are two things in mind. We can't be absolutely sure that these are benign vascular tumors and secondly the eye is sightless and will continue to be sightless. The eye will be much worse than an artificial eye."

Question from the floor—"When is this condition usually diagnosed?"

Dr. Costenbader—"Glaucoma has been diagnosed in the 4th week of life. I have no doubt that some babies have enlarged globes at birth. From about the 4th week until the age of one year the cornea may become steamy and painful."

Dr. Wall—"If radium is employed to treat a nevus of the eyelid, what are the possibilities of injuring the eye?"

Dr. Costenbader—"If adequate filtering is established all around the area of the nevus, radium can be used safely. Both radium and x-ray are dangerous to the eye. Lead and mercury can give a reasonable amount of protection."

CASE REPORT NO. 6

POLIOMYELITIS HYSTERIA

Dr. Sidney Ross F.E. #341178

Patient was a ten year old, colored, female, admitted to the Children's Hospital Dispensary with the chief complaints of inability to walk and pains in both lower extremities of twenty-four hours duration.

During the week prior to entry, she had complained of pain in the infra-scapular region bilaterally, and weakness of the right arm. There was no concomitant headache, fever, nausea, vomiting or nuchal rigidity. Four days prior to the onset of these symptoms, her seven year old brother had been admitted to Children's Hospital where a diagnosis of acute anterior poliomyelitis was established.

Past history was non contributory.

Physical examination revealed a moderately well-developed, slender colored girl who did not appear acutely ill. There was marked hyperesthesia and muscle tenderness elicited over both quadriceps. Kernigs were positive bilaterally, with mild spasm of the hamstrings noted. On attempting to stand, the patient appeared unable to support any weight on her extremities even

when held up, her legs sagging limply. Superficial and deep reflexes were normal. No nuchal rigidity was elicited. Brudzinski's were negative. The remainder of the physical examination was not remarkable.

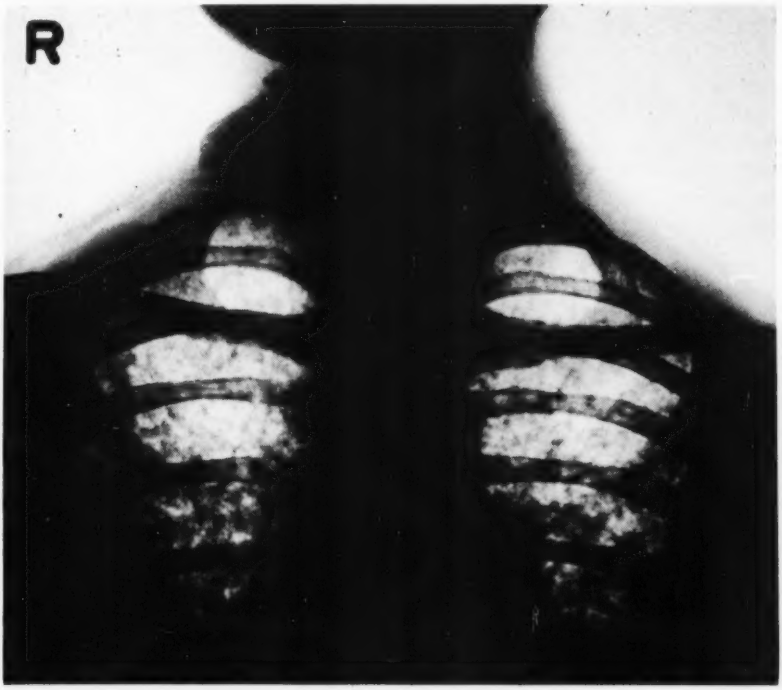
Blood pressure 105/65; temperature 99°; pulse 82; respirations 22.

Examination of the spinal fluid revealed clear, colorless fluid with normal dynamics. There were no cells present; sugar and protein were within normal limits.

Because of the noticeable disproportion between the degree of the child's paralysis and her lack of overt appearance of being ill, the possibility of hysterical paralysis was raised. It was decided, therefore, to try both direct suggestion and indirect suggestion, the latter with a sterile hypodermic of 5 cc. normal saline as the vehicle; a consideration and due regard for the limitations of the method, as well as the realization that suggestion per se would probably provide only symptomatic improvement was borne in mind.

Toward this end, the child was told she was going to get well with the aid of medicine she was about to receive. After an appropriate panegyric on the virtues of the medication, the sterile saline was injected into the deltoid muscle. About two minutes later, she was told that her paralysis had been cured, and that she *could* walk now. It was rather to the surprise of those of us present when the child climbed down from the examining table unaided, and walked across the room with no residual evidence of paralysis. When told to run up and down the corridor of the Dispensary, she did so without effort. The patient was instructed to return to school on the following day, while at the same time, her parents were apprised of the advisability of regarding the child as if the episode of paralysis had not occured at all. Three days later, on a return visit to the Dispensary, the patient appeared well and was asymptomatic.

She was refered to the Psychiatric Clinic, and it was found that the patient's Rohrschach pattern reflected a rich and original intelligence and imagination with manifest evidence of immature instructual needs and a strong desire for warmth and care. The child was found to entertain some feelings of jealousy towards her brother who was apparently spoiled at home; she expressed the feeling that her parent's loved the brother more dearly, "since he was the only boy." She said she felt "terribly alone" after her brother was admitted to the hospital with polio, not only because



Courtesy of the X-ray and Photography Depts., Children's Hospital, Wash., D. C.

CASE REPORT NO. 7 M.M.—METASTATIC CARCINOMA OF THE THYROID —NOTE THE SARCOID-APPEARING METASTASIS OF THE LUNG, ALSO THE TRACHEAL CONSTRICTION WITH CALCIFICATION IN THE NECK. THIS X-RAY WAS TAKEN FOUR YEARS BEFORE DEATH.

she was not allowed to visit any of her girl friends, but also because her parents spent a considerable portion of their time in the evening visiting her brother in the hospital.

Her emotional and instructual immaturity were construed as being contributory to the development of her somatic complaints; unconsciously, the child had presumably attempted to attract to herself the same attention her brother was receiving by stimulating the symptoms of poliomyelitis.

A judicious and candid presentation of the facts was made to the parents in an attempt to enlist their cooperation and understanding as a means of preventing further reoccurrences of the mechanism of substitution or conversion.

CLINICO-PATHOLOGICAL CONFERENCE

Directed By — Dr. E. Clarence Rice
Assisted By — Dr. John E. Cassidy
Held Every Tuesday Afternoon at 3:00 P.M.

CASE REPORT NO. 7

Dr. John Cassidy M.M. - 44-7518

M.M., an 11 year old white girl, was admitted to the Hospital on October 14, 1944 with the chief complaint of persistent cyanosis and severe attacks of dyspnea. This patient was first seen in 1938 at the age of 5 years by her private physician and was treated at that time for mumps and pertussis and apparently made an uneventful recovery except for the persistence of enlarged glands on the right side of the neck. She was given sulfanilamide therapy and later received x-ray irradiation to these glands but no significant reduction in their size was noted. In 1939 her tonsils and adenoids were removed. For the next two years the patient was seen periodically for frequent respiratory infections. In 1941 an x-ray of the chest was taken because of a febrile respiratory illness. The picture was reported as revealing numerous scattered areas of calcification studded throughout the parenchyma possibly indicative of miliary tuberculosis or sarcoidosis. It was learned at that time that the father of this child had had active tuberculosis before the child was born. However, at that time he was considered arrested. A biopsy of one of the cervical nodes was made and reported as follows:

"Paraffin section reveals a dense fibrosis in which a number of gland spaces, irregular in pattern and in several groups, are embedded. These are lined by well differentiated cuboidal or columnar cells, which vary somewhat in their morphology due probably to the distortion resulting from the fibrosis. The origin of this gland structure cannot be determined definitely. It is evidently associated with a chronic inflammatory process. Its relation to the condition in the chest, as indicated by x-ray, is difficult to evaluate. There is no evidence of normal lymph node tissue in the sections. Boeck's sarcoid, as suggested by the clinical and roentgenological findings or a metastatic or multicentric growth of which the cervical lesion is a part, must be considered. Ascheim-Zondek test might be worth while."

Tuberculin tests on the patient were repeatedly negative. There was a 14 year old sister living and well. Check-up x-rays after a few months revealed no essential change in the previously

described calcified areas in the lungs and an apparently definite diagnosis of sarcoid disease was made. During the next three years the patient pursued a course of increasing aesthenia and reduced her activities to a minimum because of gradually increasing cyanosis, fatigue, and paroxysmal attacks of dyspnea. The dyspnea was especially noticeable at night. X-rays of the cervical region and chest revealed the trachea to be constricted in the region of the 6th and 7th cervical vertebrae apparently due to metastatic calcification. In October because of the increasing severity and frequency of the attacks of shortness of breath, operative removal of the cervical glands to provide symptomatic relief was decided upon.

She was admitted for this purpose on October 17, 1944.

Physical examination at this time revealed an eleven year old white girl, who was poorly nourished and had marked cyanosis of the lips and nail beds. Her respirations were labored and there was a rasping sound with inspiration and expiration. The temperature was 99.8° (R), pulse 132, and respiratory rate 24. On the right side of the neck was a firm, nodular mass. This was adjacent to the trachea, displaced it slightly to the left, and compressed it. A small portion of this mass seemed to extend over the trachea anteriorly. There were broncho-vesicular breath sounds over the entire chest with numerous crackling rales. Resonance was uniformly impaired. The heart rate was rapid but regular; no murmurs were heard. The liver edge was palpable two fingers breadth below the right costal margin. The kidney and spleen were not palpable, nor were there any abdominal masses. Blood studies revealed a mild anemia, a normal white count and differential, and normal bleeding and coagulation times. The urine was negative except for a slight trace of acetone.

The patient was transfused once, and on October 18, surgical excision of the mass was attempted using intra-tracheal anaesthesia. The post-operative condition was poor, shock being pronounced and respirations ceased four hours after the patient left the operating room.

NECROPSY REPORT

There was a firm, whitish fibrous mass closely adherent to the trachea, extending from the lower position of the thyroid cartilage to the 4th tracheal ring and to the right side of the trachea and deep cervical tissues. Continuous with this mass were small groups of firm enlarged lymph nodes, which grossly had the same structure as the mass. There was a narrowing of the lumen of the trachea

in the region of rings two and three due to compression by the growth. No grossly normal thyroid tissue could be seen.

The lungs weighed approximately four times that of the normal for a child of the same age. They were pebbled in appearance, very firm, and felt like an overloaded bag of shot. The surfaces were studded with varying sized small, grayish-pink tumor masses, which were also seen to be scattered heavily throughout the parenchyma. The centers of some of these were depressed and reddish.

The mediastinal lymph nodes were slightly enlarged, but grossly uninvolved. The bronchial nodes were markedly enlarged and showed several small grayish tumor masses.

Paraffin sections from the growth in the neck showed fields of dense fibrous tissue invaded by irregular groups and strands of rather well differentiated cuboidal or columnar cells arranged in glandular structure. The epithelial cells vary, in different areas, from large clear forms to solid plagues of cells with granular cytoplasm. In general, the acini were well developed. A number of spaces contained material believed to be colloid. A number of acini contained single or multiple typical psammoma bodies. Lymph nodes from the cervical region were identical in appearance to the tissue just described.

Sections from the lung were made up of an adenomatous structure in the main similar to that described in the cervical mass. (See slide.) There was, however, more variation in the glandular arrangement, a distinct papillary, sometimes cystic pattern being evident.

The microscopic study of the material, coordinated with the clinical and pathological findings, indicates the process to be adenocarcinoma with metastasis to the cervical and bronchial lymph nodes and to the lungs. The tissue is apparently thyroid in origin. The presence of typical psammoma bodies suggests the possibility that the condition may have originated in the anlage from which the thyroid and pituitary stalks are developed, or from cell rests deposited in the development of these structures. While the question of teratoma or dermoid cyst might still be considered, as suggested in the report on the earlier biopsy, the above explanation is thought adequate and appropriate. (Dr. J. W. Lindsay)

DISCUSSION

Dr. Rice, Dr. Lindsay, Dr. Cassidy—The property of metastasizing has generally been considered a characteristic of malignant

tumors. Primary adenomata of the thyroid gland are considered by some to represent an exception to the rule that benign epithelial tumors do not metastasize. In some cases "metastatic tumors" of completely differentiated structure have been described, even though no evidence of neoplastic activity is evident in the thyroid gland. This has given rise to much controversy.

From the pathological standpoint the separation of the malignant from the non-malignant is particularly difficult in thyroid tumors. The epithelial pattern, the character of the cells, the mitotic figures, may vary so widely, not only in different malignant adenomata, but in one and the same adenoma, as to lead to differences of opinion even among pathologists.

The term metastasizing benign tumor of the thyroid is applied by some to those cases in which apparently metastatic tumors of well differentiated thyroid tissue structure have been found without evidence of primary hyperplasia in the thyroid gland. Conheim in 1876 was the first to draw attention to this.

Ewing believed that metastatic tumors of thyroid gland may arise from aberrant thyroid tissue or from dislodged cells of a normal thyroid gland.

Wolfer, whose work on the histogenesis of thyroid tumors is outstanding, developed the theory that a thyroid adenoma represented the survival of a fetal adenoma and was a veritable thyroid cancer. He held the view that the thyroid adenomata and the metastases arising from them, even though histologically not malignant should be considered clinically so because of their growth tendency. Von Eiselberg insisted that the occurrence of metastasis is proof of essential malignancy. He classifies all such tumors as malignant and gives them the name of adenocarcinoma, even though no true cancerous changes in the cell structure can be found.

In our case there was no clinical evidence that the thyroid gland was involved. There was enlargement of the deep and superficial cervical lymph nodes and a mottled infiltration of the lung, all of which fitted in with the clinical diagnosis of Boeck's Sarcoid.

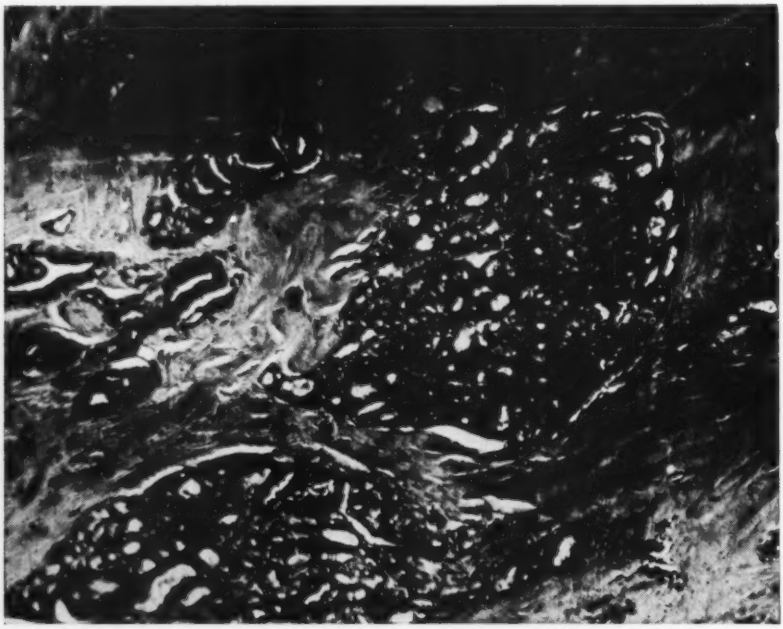
The original biopsy did show an epithelial structure in dense fibrous tissue. The report on this examination should be quoted verbatim.

After autopsy and the microscopic study of the tissue, it was evident that the impression of a possible or probable malignant tumor as found on the original biopsy, was justified, the thyroid now being recognized as the type of tissue composing the growth and the thyroid gland presumably its source.

The term "benign metastasizing tumor" of the thyroid might be applied here, but Dr. J. W. Lindsay believes the more appropriate term is adenocarcinoma of the thyroid gland with metastasis. In view of the advanced differentiation, the growth would be considered as a low grade malignancy, this supposition is upheld by the prolonged course of the illness.

In the literature several series of cases and many single ones of "benign metastasizing tumor" of the thyroid are reported. In these, over 90% were in persons between the ages of thirty and seventy years, the majority in females. In most of these the metastatic tendency was toward bone, bronchial and cervical lymph nodes; the lungs and other viscera were much less frequent sites.

Malignant tumors of the thyroid gland are extremely rare in children. In twenty-five years at the Mayo Clinic there were only eight cases (Kennedy in Brenneman).



M.M.—METASTATIC CARCINOMA OF THE THYROID TO THE LUNG.

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Occasionally, the remarks and observations of guest speakers are included in this bulletin when thought to have particular interest. The proximity of the Children's Hospital to the Medical Centers of the Army, Navy and United States Public Health Service affords us the opportunity to invite many distinguished physicians to our conferences.

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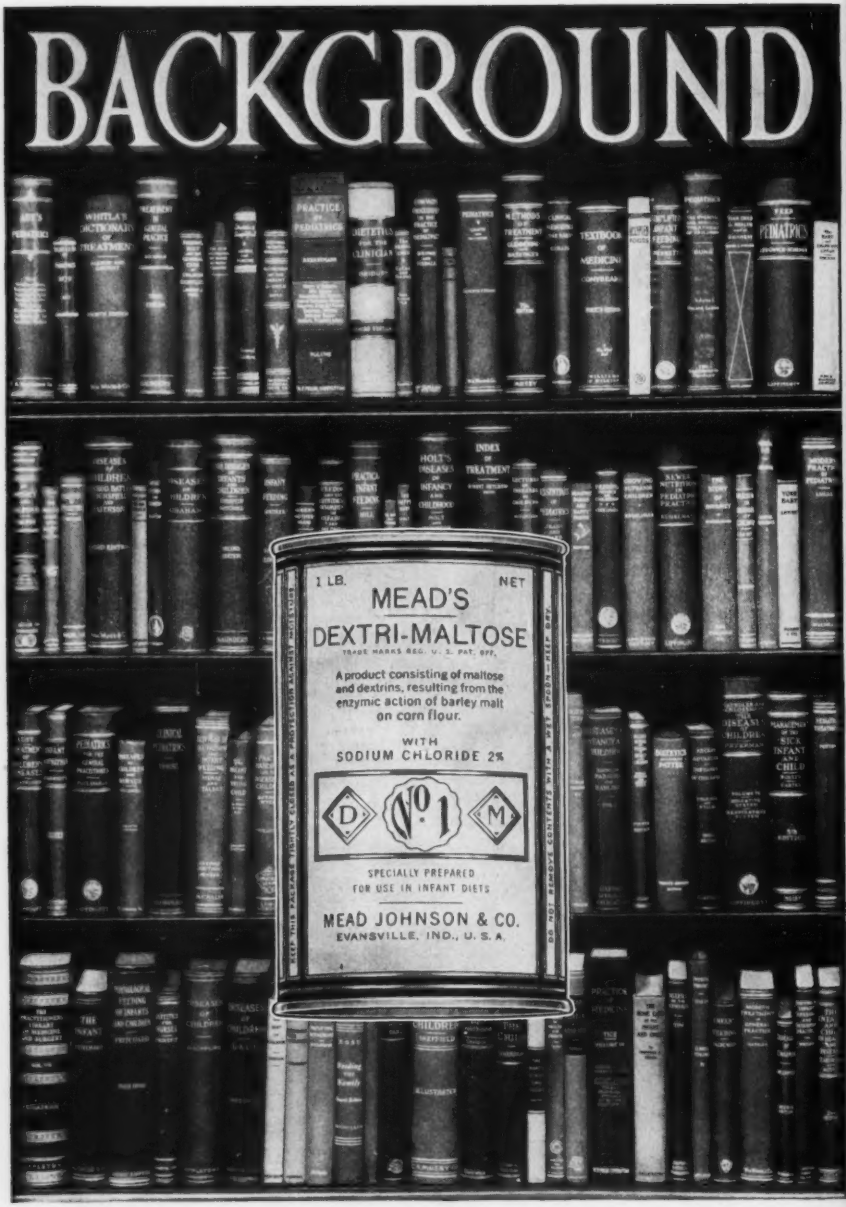
BACKGROUND



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